



Inflation Targeting, Between Rhetoric and Reality. The Case of Transition Economies

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Abstract

The paper examines the inflation targeting regime in the context of transition economies. Recent years have witnessed an increasing number of central banks in these countries moving towards the implementation of inflation targeting regimes. However, the success of such a regime depends largely on the degree to which certain general requirements are met. As experience in a number of transition economies has shown so far, targeting inflation is not an easy task. The ongoing restructuring process in these economies makes the inflation forecasting process more difficult and introduces an additional source of uncertainty in the system. By unequivocally choosing inflation as a nominal anchor the central banks could face potential dilemmas if, for example, exchange rate appreciated too much under the pressure of massive capital inflows. The paper presents the broad framework in which inflation targeting could operate efficiently and attempts to assess the extent to which such a regime, when applied to transition economies, could fit into this framework.

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1. Introduction

In recent years a number of central banks have adopted IT as a monetary policy regime. There is now a large literature that deals with IT; see among others, Bernanke et al. (1999), Taylor (1999), Truman (2003). The move towards IT started in the 1980's, after the period of high inflation caused by the oil shocks. The inflation adversity that prevailed during that period made monetary institutions to voice their strong commitment to fighting inflation. Recent developments in economic theory strengthened the case for switching towards IT. The basic macroeconomic framework of the New Neoclassical Synthesis (Goodfriend and King, 1997) has provided a theoretical foundation for models employed in monetary policy analysis. These models seem to suggest that a central bank (CB) should pursue an activist policy to target inflation. It has to be said however, that it is too early to judge how well the IT framework is working. The rationale for IT is essentially a long-term one and the inflation targeters' experience is too limited yet in order to provide a definite assessment of its success or failure.

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In a comprehensive study, Mishkin and Schmidt-Hebbel (2001) argue that inflation targeting proved to be in general a successful policy. The authors claim that IT reinforced accountability, credibility, resilience to external shocks and helped high inflation countries to reduce inflation to normal levels (most of them were emerging economies). Yet they point that, at the end of the process, inflation in IT countries is not lower than in non-IT countries. Along the same lines Ball and Sheridan (2004) show that, once corrected for the initial conditions, the differences between inflation targeters and non-targeters are minor. Fraga, Goldfajn and Minella (2003) also argue that average inflation in both emerging and developed economies fell after the adoption of IT. Other authors such as Friedman (2004) contend that IT, as practiced in reality in the low inflation countries, actually obscures the communication of the central bank's goals. Moreover, Friedman (2004) argues that this monetary policy framework is not as transparent as claimed by most IT advocates, casting doubts on the benefits brought about by the adoption of IT.

A recent analysis made by the IMF² concludes that IT appears to have generated a lower inflation environment in countries that decided to adopt this monetary policy framework. However, it is not clear to what extent the increase in globalisation and a better understanding of how monetary policy works in developed economies helped in the creation of such an environment. Moreover, the analysis makes inferences on the group of IT countries from emerging markets as a whole without distinguishing the subgroup of transition economies. Such a distinction would be useful given that transition economies face special circumstances – expectations in these countries are driven by EU accession and Maastricht criteria impose additional constraints on the implementation of monetary policy.

This paper examines the inflation targeting regime in the context of transition economies. The success of such a regime depends largely on the degree to which certain general requirements are met. As experience in a number of transition economies has shown so far, targeting inflation is not an easy task. The ongoing restructuring process in these economies makes the inflation forecasting process more difficult and introduces an additional source of uncertainty into the system. Moreover, additional constraints imposed either by the Maastricht criteria or the requirement to join the ERM II prior to the euro adoption complicate matters further. By unequivocally choosing inflation as a nominal anchor the central banks could face potential dilemmas if, for example, the exchange rate appreciated too much following capital inflows. The idea of the paper is to present the broad framework in which inflation targeting could operate efficiently and provide an assessment of the extent to which such a regime, when applied to transition economies, could fit into this framework.

The structure of the paper is as follows. Section 2 describes the basics of the IT concept and mentions several requirements that are a prerequisite for its successful implementation in practice. Section 3 outlines the European context of monetary policy management. Section 4 addresses several issues regarding the implementation of the IT regime in transition economies and provides a brief account about IT experience in three transition economies, the Czech Republic, Hungary and Poland. Section 5 concludes.

² IMF, World Economic Outlook, September 2005.

2. Inflation Targeting: Theory and Policy

Historically, to achieve their main objectives (most often, low inflation and, eventually, sustained growth) numerous central banks targeted some intermediate variable, such as a monetary aggregate or the exchange rate. Success with this method requires that (a) the central bank were able to control the intermediate variable and (b) that there is a stable relationship between the intermediate target variable and the ultimate objectives. For instance, it was sometimes claimed that the Bundesbank and Swiss National Bank outstanding record of low inflation can be accounted for by their policy of targeting a monetary aggregate (monetary targeting). Other scholars underlined that in its deeds the Bundesbank set more emphasis on inflation forecasts than on the monetary aggregate, and also that the SNB was concerned with many other indicators (Gerlach and Svensson, 2003).

In recent years, several governments in developed and developing countries decided to implement IT. Pioneers were New Zealand (1990), Canada (1991), Chile (1991), Israel (1992), United Kingdom (1992), Australia (1993) and Sweden (1993). In Eastern Europe, the Czech Republic, Poland, Hungary, Romania and Slovakia claim to have adopted this system (after 1998). Under the IT system, the central bank manages monetary policy instruments with the direct goal of containing inflation over the medium run. In this setup, inflation becomes the overriding goal of monetary policy. All the other indicators (output gap, money stock growth, the exchange rate, etc) become auxiliary variables; the central bank will take them into account only if this information helps it to improve its inflation forecast.

Experience with monetary policy management in the developed countries has shown that the impact of monetary policy changes on inflation works its effects with a significant lag (at least nine months, and up to two years for a full impact). To make things simple, when central bankers undertake a change in the main instrument at time t , the effects on inflation will be felt much later (let us say, after 6 quarters, that is at time $t+6$). Therefore, if the central bank wants to achieve a quantitative inflation target, it must act in a forward-looking manner, that is, it must decide today on the basis of a reasonable forecast of inflation at time $t+x$ (x being the number of quarters in the forecast).

It should be emphasised that under IT, inflation forecasts are contingent upon the central bank's view on the transmission mechanism, the current state of the economy and a planned path for the instrument. Complex econometric modelling and statistical inference building on high quality data and economic information is needed in order to produce reliable forecasts. The quality of the forecast varies from one central bank to another - it depends on their expertise, experience with forecasting, and available data. No doubt that the better the forecast precision, the better will be the public image of the central banker.

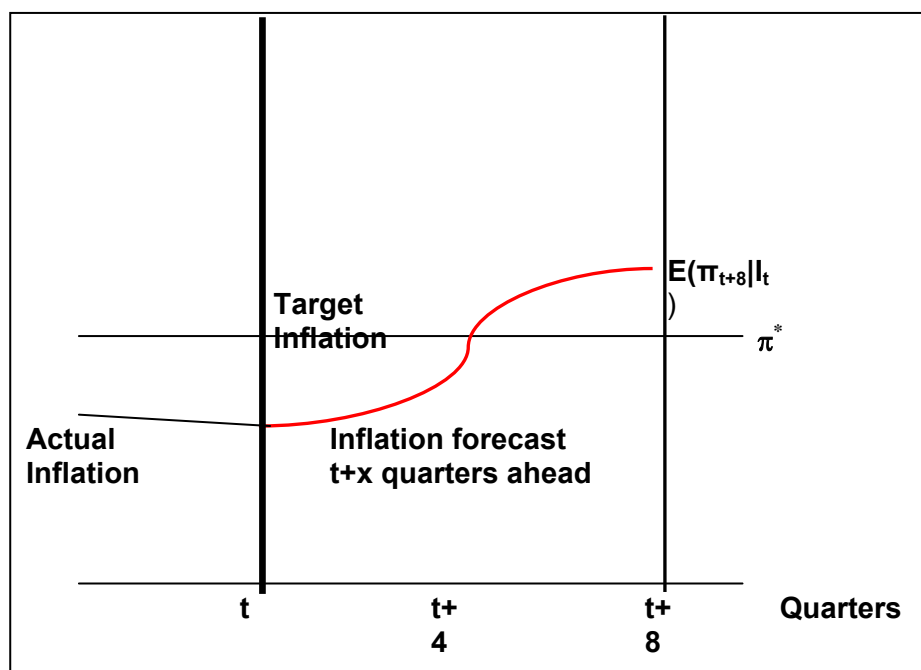
In theory, the instrument's planned path might be seen as the solution to a dynamic programming problem, where the bank has to find the instrument path that brings inflation close to the target while minimizing output volatility over the chosen time horizon (Svensson, 1999; 2000). In practice, the Bank might follow some simple decision rule consistent with its medium run objectives. The parameters of the rule depend on the quality of the forecast.

In Figure 2.1. we describe how a central banker takes its decision under the IT policy regime. At date t , the policymaker must decide on the instrument (interest rate).

He knows the previous inflation path and, given its knowledge of the economy, has an idea of the future path for inflation. The conditional forecast on the inflation rate π , calculated for x quarters ahead is denoted by $E(\pi_{t+x} | I_t)$, where I_t is the information set available at the date of the forecast. Notice that the initial forecast is obtained for an unchanged instrument (and that a change in the instrument would allow to obtain a different forecast).

Figure 2.1 describes a situation where although at time t the inflation rate falls below the target, in the medium run (8 quarters ahead), the inflation forecast, obtained for a constant instrument value, exceeds the target. In this case, the policymaker must tighten its monetary policy (although at time t inflation is below the target).

Figure 2.1. IT – the basic logic



From this simple (hypothetical) example, it can be seen how important it is for the policymaker to dispose of reliable forecasts. A reliable forecast implies that over a long period the average forecast error must be zero and the variance of the forecast error must be as low as possible. Obviously, such a forecast can be obtained only if the policymaker has a good knowledge of the monetary transmission mechanism, and of the economy as a whole.

From the point of view of implementation, a basic prerequisite for inflation targeting is the central bank's full autonomy and independence. Also, the inflation targeting framework needs to define a relevant price index; in general, it is a traditional consumer price index. The bank has then to decide on the instruments it wants to use. In the last years, central banks all over the world chose to have a say on short term interest rates, mainly through reverse-repo operations carried out in the money market. Thus, the basic instrument is some repo-refinancing interest rate. At regular intervals the CB will adjust the main instrument so as to bring the inflation forecast as close as possible to the target.

A few influential economists are enthusiastic about this monetary policy framework (see e.g. Bernanke and Mishkin, 1997; Bernanke 2003). They argue that such a policy regime allows ruling out the inflation bias connected with time inconsistency. The policymaker's accountability should be quite high under IT since his performance can be directly measured, for instance by the deviation between actual inflation and the target. Transparency is taken a step further since the forecasting method (econometric model) is made available to the public. In general, IT central banks communicate very much on their policy and forecasting methods. This helps private agents to obtain better inflation expectations, which should entail lower economic fluctuations.

Although most inflation targeters share some of the features mentioned above, in practice there is considerable variation in the specifics (for a characterisation of IT see for example Kuttner, 2004). In practice, central banks adopt either a formal approach or a more flexible one. The distinction between the two is that the former entails the specification of an inflation target while the latter, so called "just do it", does not. Thus, it looks as if the "just do it" approach leaves more room for manoeuvre for the CB by not binding it to hit a specific inflation target. However, CB's credibility is bound to play an important role in the successful implementation of monetary policy.

3. The European Context of Monetary Policy Management

According to the Amsterdam Treaty (1997) which is now an integral part of the Treaty on the European Union,³ all the new EU members must eventually join the Euro Area. In this context, the monetary institutions in transition economies are expected to be able to cope with the constraints of the ERM II. The Convention for the ERM II (September 1st, 1998) states that each euro candidate will have to define a central rate against the euro together with a standard fluctuation band of $\pm 15\%$ (a narrower band may be negotiated on a bilateral basis). Euro candidates should keep their currency within the ERM II for at least two years before accession.⁴ Given these elements, it is of interest to have a look first at the European monetary context, namely the ECB's monetary policy management.

3.1 The ECB's monetary policy management

The ECB was set up in 1999 to manage monetary policy within the EMU. The ECB's main mission is "to maintain price stability" and "safeguard the value of the euro". In the medium run the ECB has to keep inflation below 2%, as measured by the HCPI. Although the ECB is also highly independent and autonomous (its range of instruments is impressive, the governments' bail-out is banned, and member country governments' political influence over the Bank is weak), it is not of the IT type. Unlike genuine IT countries and more like the Fed, the ECB shares only a moderate concern for transparency. It is not clear how the Governing Council decides on interest rates given that the internal discussions are secret. The ECB does not issue an official

³ See the Treaty on European Union at the web address: www.europa.eu.int/eur-lex/en/treaties.

⁴ See: "The Eurosystem and the EU enlargement process", *ECB Monthly Bulletin*, February 2000; "The ECB and the accession process", Speech by Willem F. Duisenberg, delivered at the Frankfurt European Banking Congress, November 23, 2001, www.ecb.int/key/01/sp011123.htm; Niels Thygesen, "The path to the euro for the enlargement countries", Speech delivered at the European Parliament on May 8, 2002, www.europarl.eu.int/compa/econ/pdf/emu/speeches/20020521/thygesen.pdf; "Central Europe and the euro: up for adoption", *The Economist*, June 1, 2002. The text of the "Conventions and Procedures for the ERM2" on September 11, 1998 is available at: www.banque-france.fr/gb/euro/bce/cpresse/2c.htm.

inflation forecast. That is, the ECB regime appears to be closer to the “just-do-it” behaviour of the US Fed than to the full-fledged IT system of the central banks of the UK or Sweden.

As in the US, the EMU monetary policy aims at flexibility so as to be able to address, in an efficient way, the various potential threats to price stability, including exceptional events (deflation, war, terrorist attacks, imports price shocks, stock market major crises, etc.).⁵

The ECB flexibility of monetary policy is reflected in the asymmetry of inflation target. By imposing a ceiling of 2% for inflation, the conduct of monetary policy could give confusing signals to market participants in particular during circumstances of zero inflation or when prices are falling. In addition the ECB has not specified a fixed policy horizon, which allows for the necessary flexibility in responding – potentially more appropriately – to economic shocks of a specific type.

Moreover, the ECB follows a two-pillar strategy which builds on two types of analyses, an economic and a monetary one. While the economic analysis is based broadly on the outlook of price developments and of the risks to price stability in the euro area as a whole, the monetary pillar sets a reference value for money growth (M3). The two-pillar strategy which the ECB pursues thus allows more discretion in the management of monetary policy. This happens because the ECB could justify its monetary policy decisions to the public based on a range of economic and monetary developments.

3.2 Monetary Policy Practice at the Bank of England

The BoE has introduced the IT regime in 1992. In January 2004, the UK replaced the RPIX price index (which excludes mortgage payments) with the HCPI (which includes them) and which is the official index of the ECB. The Bank aims at holding the inflation rate within a narrow band around the 2% central value. Because monetary policy works its effect with several lags, under IT the central bank takes a forward looking stance over inflation developments; in greater detail, the BoE focuses on inflation developments over a two year period. In order to implement this policy, it makes use of forecasts obtained from various models. Although for the forecasting process there is a so-called core macroeconomic model of the UK economy, the BoE also uses the forecasts obtained from several other smaller models. These are intended to capture and explain some phenomena that are rather difficult to assess by simply using the core model. For example they could offer a better understanding of the recent past or, sometimes, they could evaluate new scenarios. They are also used to test the appropriateness of assumptions made about the driving processes used in the core model. The models’ output are a useful tool because they facilitate a better comprehension of how the economy works, allowing for empirical quantification and thus helping to gain a better understanding of the monetary policy transmission mechanism. Aided by the forecast output of these models, the BoE’s Monetary Policy Committee (MPC) makes a judgement about the future potential developments of inflation and output growth. Every month, the BoE publishes a two-year ahead forecast for the annual CPI and RPIX inflation and four-quarter growth rate of GDP,

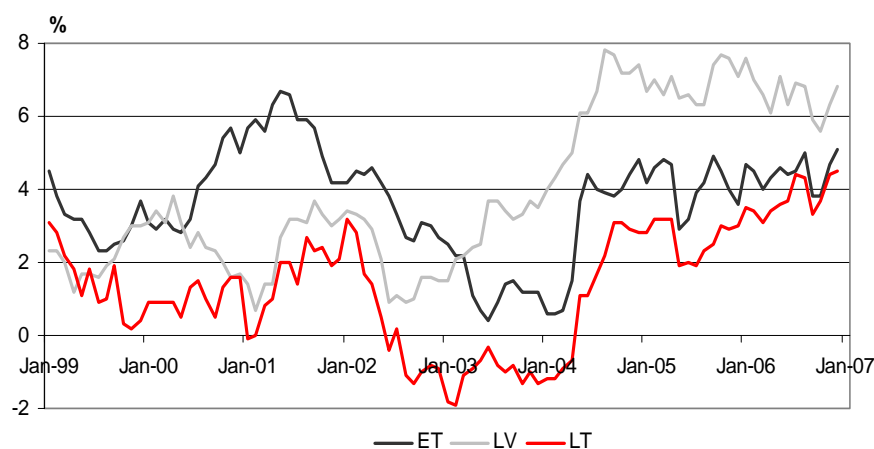
⁵ The speech by Allan Greenspan, “Risk and uncertainty in monetary policy” on January 3, 2004 is a convincing plea in favor of flexibility and adaptive monetary policy management. See www.federalreserve.gov/boarddocs/speeches/2004/20040103/default.htm.

under the assumption of constant short-term UK interest rates, in the form of a fan-charts. The forecast process at the BofE takes several steps. First, there is a meeting between the MPC and the BofE staff aimed at establishing the key assumptions together with a risk assessment. These are then incorporated into the BofE's economic models by the forecasting team in order to obtain a draft forecast. The draft forecast is analysed by the MPC which may require changes subject to revised assumptions and new information. Finally the forecast is fine-tuned by the MPC in response to the latest economic developments. All monetary policy decisions are interpreted and motivated in the light of these forecasts. The basic principle is that a deviation of the forecast from target requires a current intervention of the Bank: when the forecast exceeds the target, monetary policy is tightened and vice-versa.

3.3 The Baltic Countries

The Baltic countries stand out from the group of inflation targeters. Notably, the central banks of Estonia, Latvia and Lithuania have all adopted some sort of a currency board arrangement. With the three countries committed to join the EMU as soon as possible it looks unlikely that they will change their current monetary policy framework before adopting the euro. The group of Baltic countries has managed to contain inflation although after joining the EU in 2004 the accession costs pushed up inflation by an average of 3 percentage points in all Baltic countries (see Figure 3.1 below).

Figure 3.1 Annual Inflation Rates in the Baltic Countries



Although a fixed exchanged rate mechanism is successful in anchoring inflation expectations it might be detrimental to the country's competitiveness if fluctuations in the value of the euro, to which the Baltic countries currencies are pegged, occur in international financial markets. Thus, the loss of monetary policy indepedence could affect the central bank's response to shocks and prevent the timely adjustment of other macroeconomic variables. Moreover, higher commodities and energy prices could lead to imported inflation, a phenomenon which a monetary authority that targets a fixed exchange rate can do little against.

On the benefits side, for small open economies, like the Baltic countries, an exchange rate strategy could help in smoothing out global financial and commodity markets shocks while reducing foreign exchange rate volatility. And the latter is an

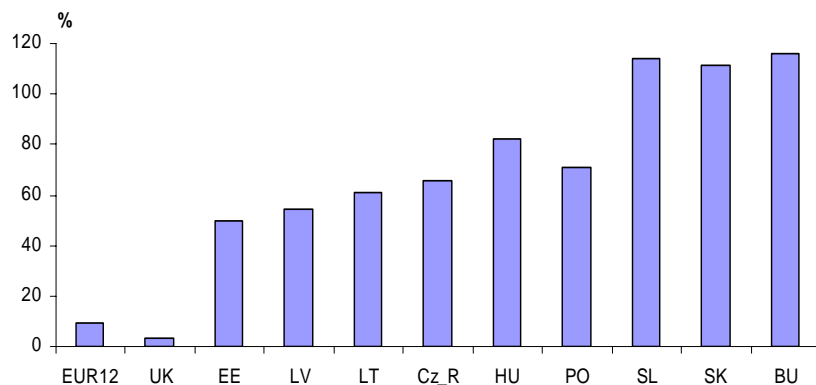
important element as the exchange rate channel affects consumer price dynamics considerably in all Baltic countries.

Given that the Baltic countries have been pursuing a pegged exchange rate long before they joined the EU in 2004, it is not surprising that all three of them adopted the ERM II mechanism soon after becoming EU members.

The central banks of the Czech Republic, Hungary, Poland, Romania and Slovakia have also moved towards IT (see next section). However, there is still some way to go until the performance of IT in these countries will be close to that of more advanced economies.

While monetary authorities in the new EU members and candidate countries⁶ have adopted different monetary policy frameworks, because of the Maastricht criteria requirements they all face similar concerns in the medium term. Thus, apart from low inflation, an objective which all central banks aim at, the stability of the exchange rate is also one of the variables closely monitored by the monetary authorities. As investment opportunities in the new EU members and the candidate countries have increased, so did the volume of foreign inflows. In reply to the increased demand for domestic currency most central banks have been forced to resort to sterilised interventions. As a consequence their foreign currency reserves are much higher than those in other developed countries. For instance, Figure 3.2 below shows the ratio of foreign reserves to M1 at the end of 2004.⁷

Fig. 3.2 Foreign Reserves to M1 Ratio, End-2005.



Data Sources : Eurostat and authors calculations

The share of foreign reserves in M1 in EUR12 countries is less than 10% while for the UK, one of the countries considered to have best IT practice, it is a meagre 3.4%. In contrast, in the Baltic countries the ratio stands at 50-60%, not surprising given their pegged exchange rate agreements. Bulgaria, which also implements a fixed exchange rate policy has a much higher ratio, around 130%. One would have expected this ratio to be lower in the IT countries. In fact, in all Eastern European IT countries this is exactly the opposite. The Czech Republic, Hungary, Poland, and Slovakia all have

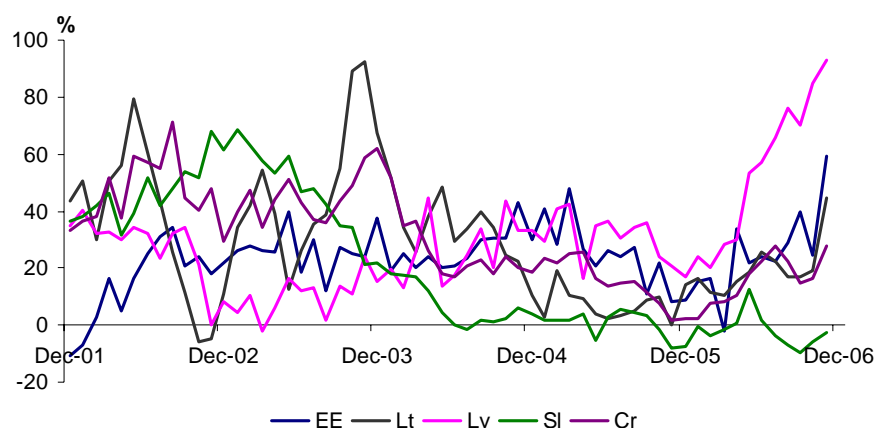
⁶ Candidate countries are Bulgaria, Romania and Croatia. Barring any unexpected developments the first two countries should join the EU in January 2007. Croatia still needs to complete its EU accession talks.

⁷ For the current purpose a more appropriate measure of the money supply would have been the monetary base, M0. However, given some data availability constraints the choice of M1 ensures direct comparisons between individual country ratios.

higher foreign reserves to M1 ratios than countries that implement a fixed exchange rate regime. In Romania, which is not depicted in Figure 3.2, foreign reserves covered almost 2.3 times the money supply M1 at the end of 2006⁸! Thus, paradoxically, the monetary conditions in the IT countries are more stringent than those in the countries with pegged exchange rate regimes.

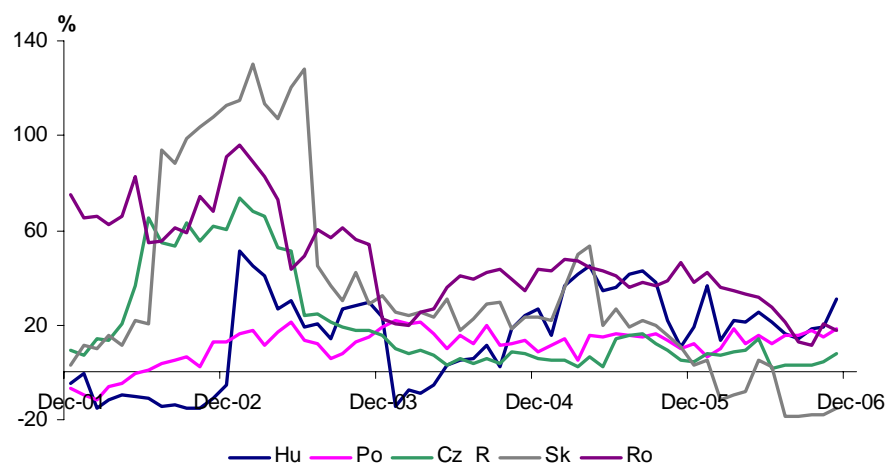
Figures 3.3a and 3.3b show the annual increase in foreign currency reserves in the non-IT and the IT countries respectively.

Fig. 3.3a Annual Increase in Foreign Currency Reserves (non-IT countries)



Data Source: IMF

Fig. 3.3b Annual Increase in Foreign Currency Reserves (East European IT countries)



Data Source : IMF, except Romania for which data is from the NBR monthly bulletins.

The accumulation of foreign reserves does not seem to vary markedly between the two groups of countries. However, over the last months the trend in the growth rate of foreign reserves seemed to have come down from the high rates of 2002-2003. One exception is Romania where the annual growth rate of foreign reserves stands at around

⁸ And around 3 times the base money, M0.

40%. To avoid an excessive appreciation of the domestic currency, the Leu, the NBR continues to sterilise large volumes of capital inflows and then to absorb the resulting excess liquidity from the money market. Because of its ERM II participation, Hungary has been also forced to defend the trading band of the forint. The rate of change in foreign reserves is more volatile in Hungary than in other country. The January 2003 episode, when the NBH defended the forint against a speculative attack can be singled out, as a massive increase of 50% in foreign reserves was needed to fend off the attack. But, while targeting inflation, other central banks in EE have made routine interventions in the foreign exchange markets. The CNB also used to intervene in the foreign exchange markets quite often in order to counter upward pressure on the exchange rate⁹. And so has done the central bank of Slovakia.

At various points in time all central banks in EE have been confronted with large capital inflows, some of which were speculative in nature. And these occurrences are likely to happen again in the near future if inconsistencies in macroeconomic policies emerge. To avoid excessive appreciation/depreciation of domestic currencies the central banks have tended to resort to sterilisation procedures – which led to the presence of chronic excess liquidity. Thus, in EE countries the relevance of reverse-repo transactions is much higher compared to developed countries (where the repo operations are common). While in some countries, like the Czech Republic or Poland, repo transactions have started to be used more intensively, the workings of monetary transmission mechanism is yet to be fully understood by the monetary authorities in order to make a better use of this monetary policy instrument.

4. Inflation Targeting in Transition Economies, Issues and Experience

4.1 Is the IT Framework Solely Responsible for the Disinflation Process?

Given their post communist experience with high inflation it is not surprising that several central banks in EE have become strong adherents of IT. Following a period in which most of them pursued a monetary policy aimed at stabilising the exchange rate, subsequently they turned to IT. Although the EE central banks which follow IT tend to stress the importance of pursuing this monetary policy framework in achieving low inflation, this need not necessarily hold true. Inflation in almost all Central and Eastern European countries has been following a downward trend (from the high levels of inflation experienced after 1990) – irrespective of the choice of monetary arrangements and regimes employed by the central banks of these countries. Clearly the recent low global inflation environment has made it easier for the EE countries to control domestic inflation.¹⁰ This argument aside, it is not immediately apparent what the results of implementing a different monetary policy framework by the current IT countries would have been.

In general, it was the implementation of sensible domestic fiscal and monetary policies in transition economies, aided by favourable external inflation developments, that led to a low inflation environment. If these policies continue to be pursued responsibly there are no reasons to think why the inflation rate could not be maintained

⁹ See OECD Economic Surveys: Slovak Republic 2005 and Disyatat and Galati (2005).

¹⁰ Indeed, this is a view shared by a number of central bankers and economists from both EE and non-EE countries that target inflation as well.

at the low levels already achieved in most of these countries even in the absence of a genuine IT regime.

As Table 4.1 below shows, countries that pursued different monetary policy frameworks – such as the Baltic countries or Bulgaria, for instance, have also achieved low inflation.

Table 4.1 Average Annual Inflation (%)

Year	Cz_R	HU	PO	SL	SK	ET	LV	LT	BU	RO
1999	2.1	10.0	7.3	6.1	10.4	3.1	2.1	1.5	2.6	45.4
2000	3.9	9.8	10.1	8.9	12.3	3.9	2.6	1.1	10.3	46.3
2001	4.7	9.2	5.5	8.6	7.2	5.6	2.5	1.5	7.4	34.8
2002	1.8	5.5	1.9	7.5	3.5	3.6	2.0	0.4	5.8	22.7
2003	0.1	4.4	0.8	5.7	8.4	1.4	2.9	-1.1	2.4	15.4
2004	2.8	6.8	3.6	3.7	7.5	3.0	6.2	1.2	6.2	12.0
2005	1.8	3.6	2.1	2.5	2.8	4.1	6.9	2.7	5.0	9.1
2006	2.5	3.9	1.0	2.5	4.3	4.4	6.6	3.8	7.3	6.7

Source: Eurostat and Authors Calculations

Inflation targeting in transition economies has been a more challenging task than in developed economies. As experience with IT in transition economies shows, the central banks in these countries often missed inflation targets by a significant amount. Jonas and Mishkin (2003) look at the potential difficulties and evaluate the outcome in the three East European countries, the Czech Republic, Hungary and Poland that claim to use the IT system. They conclude that although the progress of disinflation has been good, the relatively high level of uncertainty in these countries makes it relatively difficult to predict inflation over the medium term – as required by the IT approach.

This is not a minor shortcoming. In the developed countries, adoption of IT implies that the central bank dispose of the technical ability to:

- have a reliable conditional forecast of inflation (6-8 quarters ahead); and
- know how to adapt its instruments so as to bring the forecast close to the target.

All the benefits which derive from IT in terms of accountability and credibility stem from these conditions. Obtaining a reliable conditional forecast is a very difficult task – and the ECB itself did not accept this challenge! What if the forecast is wrong? Figure 2.1 proves the point. If the true forecast falls below the target, the policymaker would tighten monetary policy when he should loosen it. The relationship between the instruments is in general assumed to be known but this relationship changes continuously in developing economies.

Given the fact that the risks of getting wrong forecasts – and thus missing inflation targets – in a transition economy are quite large, the central bank's credibility may be adversely affected by the adoption of IT. By adopting a rigid framework for monetary policy management in the context where the criteria for the well functioning of this framework are not fulfilled, the central bank's credibility can only be damaged.

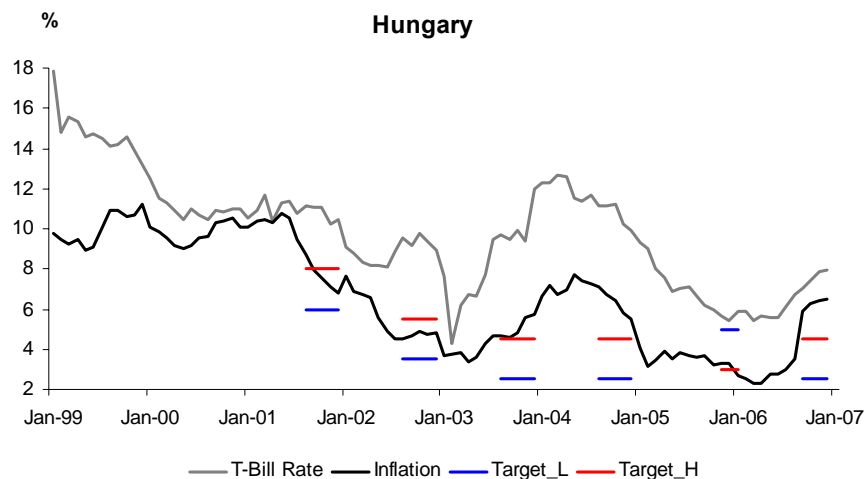
In a recent paper Stone (2003) shows that, although a series of developing countries pretend to practice IT, in reality they are not able to meet their inflation

targets. The paramount policy issue in these countries is then whether the central bank should pre-commit itself to a single nominal anchor – namely inflation. The same question is posed for the particular case of transition economies. Is the formal IT regime, as it is claimed to be implemented by the central banks in transition economies, best suited, given current economic circumstances? And if it is not, what would the alternative be? To answer the first question one would have to look at the particular issues that might obstruct the implementation of the IT regime in transition economies. Here we look in particular at the preliminary IT experience in three transition countries, the Czech Republic, Hungary and Poland, mainly because of the existing track record – albeit small – these countries have in this respect. A comprehensive analysis of the economic developments that led to the introduction of IT in these countries is beyond the scope of this paper.¹¹ However, for evaluation purposes a brief overview of the IT experience in these countries could be a useful exercise. This would also help in identifying some of the potential challenges for monetary policy that lie ahead.

4.2 IT Experience in EE Countries

Hungary. Officially, Hungary launched inflation targeting in mid-2001. The first target band was $\pm 1\%$ centred around a target rate of 7%. by the end of 2004 the initially announced target band was 3.5% $\pm 1\%$. With inflation pressures rising in early 2004 the NBH revised upwards its end-2005 target band to 4% $\pm 1\%$ with the central parity target at the end 2006 falling by 0.5%. It is worth noticing that, while targeting inflation, the NBH aims simultaneously at maintaining the forint-euro exchange rate within a $\pm 15\%$ band, which in effect emulates the ERM-II regime.

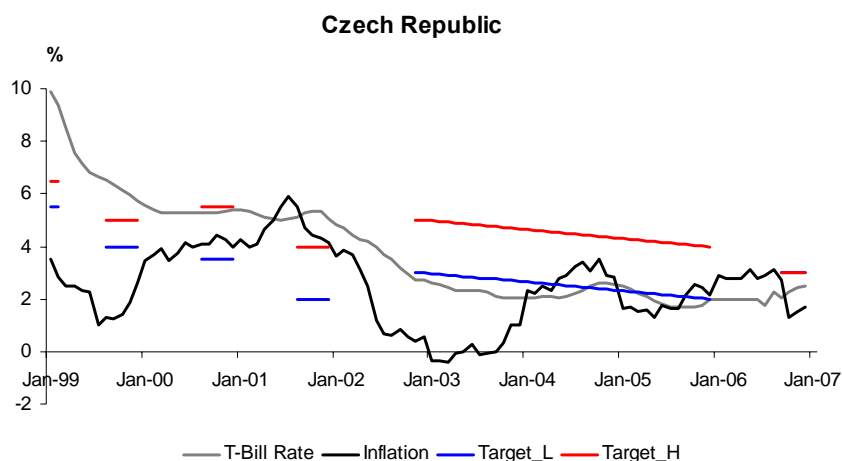
Figure 4.1: Hungary—inflation, targets and actual



Czech Republic. The Czech Republic adopted the IT framework in December 1997 and had an initial band of 5.5-6.5% and a one-year time horizon. Initially, the Czech National Bank (CNB) chose to target core inflation but moved to CPI in December 2001. Starting with January 2002 the CNB adopted a 4-year inflation forecast period in which targeted inflation is expected to fall gradually within a band from 3-5% to 2-4% by the end of December 2005. From January 2006 the CNB announced that it would target an inflation rate of 3% until the country joins the euro area.

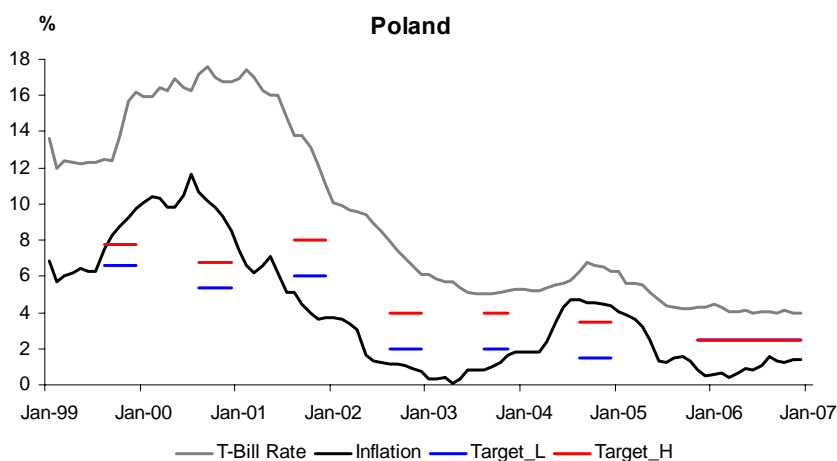
¹¹ For this see Jonas and Mishkin (2003).

Figure 4.2: The Czech Republic—inflation, targets and actual



Poland. In Poland the NBP set a short-term inflation target within the 8-8.5% range in June 1998. Subsequently different targets were set at the end of each year. At the time of the announcement that inflation targeting is to be implemented, the NBP was still maintaining an exchange rate band. This was widened gradually before allowing the zloty to float freely in April 2000. For the end-2005 and 2006 the target inflation band was 2.5% +/- 1% and in the medium term monetary policy aims at keeping annual inflation as close as possible to 2.5%.

Figure 4.3: Poland—inflation, targets and actual



Prior to year 2006 the Monetary Policy Council (MPC) used to signal to the public its monetary policy bias. This was considered to limit the flexibility of monetary policy and therefore, starting from 2006 the MPC announced it would communicate an assessment of a sum of factors that could affect future inflation instead.¹²

¹² Inflation Report, January 2006, National Bank of Poland.

Romania. The National Bank of Romania (NBR) announced its official adoption of the IT regime in August 2005. However, inflation targets – for a three-year time span – were made public long before that. Initially, the end-2005 inflation target was set at 7%. This was later changed to a target band of $\pm 1\%$ centred around 7.5%. Actual inflation proved to be 8.6%, falling just above the upper limit of the band. In 2006 however, helped by a strong domestic currency appreciation, actual inflation was 4.7% and fell within the NBR's inflation target band of 4-6%. For 2007 the NBR's inflation target band is set at 3-5%.¹³

Slovakia. Subsequent to joining the EU in 2004 the government and the National Bank of Slovakia (NBS) announced a strategy for adopting the euro by 2009. Under this economic strategy, a new monetary policy framework – defined as 'inflation targeting in the conditions of ERM II' – was established. The inflation targets announced by the NBS for 2006 and 2007 are asymmetric, below 2.5 and 2% respectively. However, these could prove to be ambitious if the current level of high oil prices is maintained. In the last quarter of 2005 alone inflation rose from 2 to 3.9%.

From Figure 4.1-4.3 it can be easily noticed that three central banks with more experience with IT (ie Czech Republic, Hungary, and Poland) have had limited success in hitting inflation targets¹⁴. This is not surprising given the challenges IT poses in transition economies. The next section highlights a series of policy implications for Eastern European countries that target inflation.

4.3 Policy Implications for IT Countries in EE

In general, countries that moved towards IT in EE have done so because this operational framework of monetary policy was considered to be the best alternative. Monetary targets were pursued either directly or indirectly in early 1990's by Slovenia, Slovakia, Poland and Czech Republic among others. However, given the instability of money demand most of these countries moved gradually, in a more or less formal way, towards exchange rate targeting. The adoption of this monetary policy framework enhanced central banks' credibility in fighting inflation since the objectives of monetary policy itself were easier to understand by the public. As inflation rates were falling towards single digits it became apparent that the need for structural adjustment required the adoption of a more flexible approach to exchange rate policies. Apart from this, an exchange rate peg or target band is prone to currency attacks, a serious risk, considering that a combination of high interest rate differentials (compared to the EU countries in particular) and a tendency for a domestic currency appreciation existed in these countries. With nominal income or price level targeting not favoured for different

¹³ In early 2006, at the time of its inflation targets announcement the NBR also acknowledged that its 2006 inflation target would, very likely, be missed. The NBR's decision to aim for an inflation rate which even the NBR considered to be unrealistic is questionable since the public's inflation expectations – the ones that matter – are not influenced by the pre-announced inflation target anymore. This could cast some doubts on its overall approach to IT management. Paradoxically, subsequent economic developments – in particular the strong appreciation of the RON caused by strong inflows of foreign capital and increased demand for foreign products, made inflation to fall within the target band.

¹⁴ Given the short time period which elapsed since both Romania and Slovakia moved officially towards IT it is too early to assess the success of IT regime in these countries.

reasons,¹⁵ the move towards inflation targeting seemed particularly appealing because of its apparent simplicity. While such a way to conduct monetary policy is more suitable for free market economies with a proven track record, its adoption by the Eastern European economies – which are still undergoing structural changes – could face a number of challenges.¹⁶

Firstly, the source of the shocks that hit the Eastern European economies is rather uncertain. A central bank would adopt a different course for monetary policy if it knew that the economy was subject to a demand shock rather than a supply shock. The difficulty of disentangling the source of the shocks stems from the fact that the effects of the structural changes that these economies undergo overlap with those brought about by external causes, such as a shock to terms of trade for example. And this problem is going to persist in the near future as broad structural reform is still set to continue for some time in these countries. A solution to this problem could be provided by model simulations. However, the design of econometric models that would be able to produce a reasonable inflation forecast in any of the three countries has so far proved to be rather challenging.

The NBH has initially been using the global model (NIGEM) of the National Institute of Economic and Social Research (NIESR). A Hungarian block was developed within the NIGEM which was then used for scenario analysis. More recently the NBH has developed a quarterly model, called NEM, which is used both for policy simulations and forecasting. Similarly, the CNB has been also using a small quarterly model for some time. The NBR uses a simple new-Keynesian model which is still in its early stages of development and testing. There have been several attempts to build models for forecasting inflation at the NBP (see, for example¹⁷ Kokoszczynski et al., 2002 or Kłłos, 2002). But the conditional forecast of these models seems to have been falling short of expectations so far – as suggested by an ex-post comparison between realised end-year inflation against targets. This should not come as a surprise, as the likelihood that these models are mis-specified is rather high. Additionally, some of the estimated coefficients in the models' equations could be biased. Kemme and Gavin (2004) have found that the forecasting processes in these countries yield superior results if coefficients obtained by a panel data estimation of the 15-EU countries are used instead. This seems to suggest that there is already a relative high level of economic integration between these three countries and the 15 countries that formed the EU before 1 May 2004.

Another important observation pertains to inflation volatility. This – as measured by a rolling 12-month standard deviation – has tended to move in cycles and has not fallen considerably (see Figure 4.4 below).

A common feature of the IT countries seem in fact to be higher inflation volatility than non-IT countries. Although this observation is supported by findings in

¹⁵ Nominal income targeting has proved to be imprecise while price level targeting imposes more stringent restrictions on the behaviour of the central bank since any over/undershooting of the price level target will have to be subsequently corrected so as to hit the target implying a finite price level variance. This is in contrast to inflation targeting where the price level variance tends to infinity (see, for instance, Carlstrom and Fuerst, 2002).

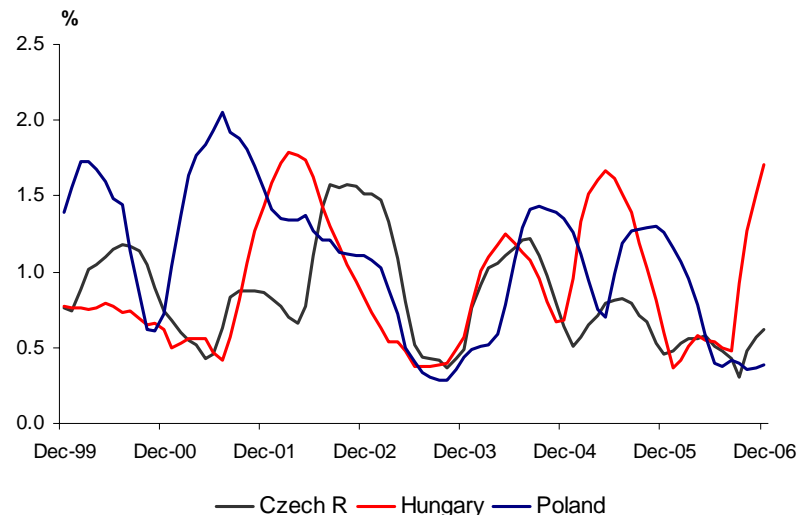
¹⁶ Moreover, the participation in the ERM II mechanism conflicts with the IT principles since the monetary authority will have two objectives instead of one – as required by the IT framework.

¹⁷ We are grateful to Marek Gruszczyński for providing us the links to those papers.

other papers,¹⁸ the question that arises is whether such volatility is desirable. For instance, since the adopting of IT, inflation volatility has been quite high in Hungary.

Secondly, there is the issue of multiple objectives. It is hard to believe that the authorities in transition economies would place a much lower emphasis on other macroeconomic variables such as economic growth or employment compared to inflation.

Figure 4.4: The volatility of inflation



This is not to say that central bankers care only about inflation, in other words they are “inflation nutters” in Mervin King’s terminology. But the weights assigned to economic growth or employment for instance are bound to be higher in practice than the central bank would acknowledge. This is because, ultimately, higher unemployment could cause public dissatisfaction with the government’s economic policies which in turn may lead to macroeconomic instability. Already Socialist governments in the Czech Republic, Hungary and Poland have been losing support as they cut welfare and state jobs to meet EU requirements on deficits and debt. The prime ministers in all three countries have bowed to public pressure and have resigned since their countries joined the EU. And coalitions led by Socialists in the Czech Republic, Hungary and Poland suffered defeat in June 2004 European Parliament elections. This could add up to the pressure the central banks in these countries already face to pay more attention to economic growth.

Moreover, there is an inherent unavoidable conflict caused by multiple objectives that lies ahead for all new EU members. All countries that intend to join the EMU (as all new EU members have to do so sooner or latter) are required first to spend a period of minimum two years in the ERM II. This means that the central bank will have to maintain a $\pm 15\%$ exchange rate band around some predetermined central parity. But preserving the value of domestic currency against the euro within the band while, at the same time, targeting inflation could cause potential conflicts for the conduct of monetary policy. The experience of the NBH is illustrative in this respect. In

¹⁸ Levin et al. (2004) find that, while most of their developing countries in their sample succeeded in reducing the mean of inflation, the volatility of inflation remained quite high.

2003, in the aftermath of a speculative attack on the forint, the NBH was forced to shift the band the forint was trading in at that time. The NBH moved in strongly to defend the exchange rate band, spending some euro 5.3 billion or the equivalent of 7% of GDP. Apart from the spillover effects such actions might have,¹⁹ they are bound to affect the credibility of monetary authorities.

Thirdly, fiscal policy considerations play an important role in the evolution of inflation in transition economies. Although the design and implementation of monetary policy in all three countries lies ultimately with the central banks, other crucial elements of policy credibility such as the fiscal position play a decisive influence on inflation expectations. The pressure on budget deficits is likely to grow in the years to come as the EU accession costs will have to be added to the costs of reforming social security systems. The latest IMF country reports for all three countries suggest that fiscal policies are on unsustainable paths. Moreover, the level of public debt in Hungary and Poland is already close to the Maastricht limit of 60% of GDP. As a consequence, in 2004 both Standard and Poor's and Fitch rating agencies downgraded Poland's domestic debt. Such actions can affect the credibility of fiscal policies and raise inflation expectations. For example, the two criteria used by Stone (2003) to measure policy credibility in a range of developing countries were the actual rate of inflation and the Standard and Poor's long-term government debt ratings. On both counts the situation seems to get actually worse in Poland. In Hungary policy inconsistencies have weakened policy credibility, although in 2005 concerted efforts by the government and monetary authorities seemed to have reversed the trend somewhat. However, this could still be damaged if steps are not taken to achieve fiscal consolidation and contain the current account deficit (see Appendix 1).

4.4 Individual Country Economic Issues in Brief

Czech Republic. As stressed in the latest OECD Country Economic Survey²⁰ and shown in Appendix 1, the government's fiscal position deteriorated in 2005, being revised up from 2.6% to 3.6% of GDP. Fiscal discipline was weakened mainly by pre-election spending commitments which pushed up deficit projections and increased spending ceilings of government's Medium-term Expenditure Framework. The June 2006 general election failed to deliver a clear majority to coalition groups and the ensuing political stalemate has already generated delays in implementing the much needed structural reforms for achieving fiscal stabilisation. Although the size of public debt is under control, aided also by the low level of interest rates, long term stabilisation of public budgets would pose a challenge to both monetary policy, to keep inflation under control, and the country's strategy of joining the euro area. Moreover, high labour market rigidity prevents adjustment and impedes output stabilisation. Mainly because of these reasons, the monetary and fiscal authorities recommended the Czech government to avoid entry into the ERM II mechanism in 2006²¹ acknowledging that the economy needs to achieve more flexibility before getting locked in the ERM II. The target date of

¹⁹ Foreign investors reacted to the NBH intervention in the foreign exchange markets by adopting different positions vis-à-vis other EE currencies. As a consequence, volatility of these currencies increased inducing more uncertainty. The movements in the Czech koruna against the euro provides a good example.

²⁰ Czech Republic OECD Economic Survey 2004.

²¹ Inflation Report, National Bank of Czech Republic, January 2006.

joining the euro area by 2010 has been officially abandoned with no other date has been set so far.

Hungary. Fiscal balances in Hungary indicate a strong link with the political business cycle and the April 2006 parliamentary elections proved this once again. In early 2006 the stimulatory effect on the economy caused by higher than expected government expenditure pushed the budget deficit above 10% of GDP (see Appendix 1). The subsequent adoption of a fiscal austerity package is expected led to lower economic growth. On the other hand increases in VAT rates, aimed at raising government revenues, and energy prices has already pushed up annual inflation. Persistent high general government and current account deficits continue to call into question the sustainability of Hungary's macroeconomic path. And this situation of twin deficits is likely to persist in the medium term (see data in Appendix 1). In its November 2005 inflation report²² the NBH acknowledged its limited influence on containing inflation pressures in the short and medium term. Uncertainties regarding both changes in external conditions as well as in domestic fiscal policy could lead to a radical alteration of the current monetary conditions and the factors that cause inflation. However, the timing and consequences of such influences on inflation are hard to predict, making it extremely difficult for the NBH to assign a high probability to a certain time path of inflation. Hungary's current situation reflects both inconsistencies having multiple objectives – an inflation target and an exchange rate target – and government interference in decisions related to monetary policy.

Poland. The lax stance of fiscal policy over the last years has led to a rapid accumulation of public debt which has already reached over 52% of GDP. Even with privatization revenues remaining at the same level, if fiscal policy is left unchanged the OECD simulations²³ show that public debt could expand at a rate of 5% a year in the medium term. The IMF projections²⁴ of a two-year slowdown in output by less than 3 percent indicate that public debt could reach 75% of GDP by the end of the decade.²⁵ The uncertainties surrounding future path of fiscal policy are seen as a major threat to inflation in the medium term. And missing inflation targets could damage the central bank's credibility. This could be further dented by other operational aspects flaws such as conflicting signals from the MPC regarding inflation developments or uncertainties regarding future stance of monetary policy due to the MPC members nomination process. Although lately inflation undershot its target, this was mainly due to external developments and the fall in food prices, over which monetary policy had little control. Given further need for further structural adjustment it is not surprising that Poland did not move into ERM II in 2006.

Romania. Following a substantial liberalization of the capital account by early 2005, large foreign capital inflows have appreciated the domestic currency. Since then, over a period of one year, the RON has appreciated against the euro by around 18%

²² Quarterly Inflation Report, National Bank of Hungary, November 2005.

²³ OECD Economic Surveys, Poland, 2004.

²⁴ IMF Country Report No. 05/263, July 2005.

²⁵ This looks a remote possibility at the moment. Economic performance has been strong, reaching 5% in 2006, and the prospects of a continuation of robust growth in 2007 and 2008 are high. However, public debt level is still close to Maastrich criteria and any slowdown in economic growth could push it above the 60% threshold.

aiding, to a large extent, the central bank's efforts to bring inflation closer to the end-year target. The appreciation of domestic currency is looming as a threat to productivity and might hamper growth in the period to come.²⁶ Fuelled by a relatively strong domestic demand the current account deficit went over 10% of GDP in 2006 and is likely to remain around this level in the short term. Although a restrictive fiscal policy has kept the budget deficit in check, this is likely to rise in the coming years, pushed up by the EU accession costs and pensions system reform. With inflation falling more rapidly than anticipated, at its first meeting in 2007 the MPC decided to cut its benchmark rate by 75 basis points to 8%. The NBR's bold move tends to suggest two things. Firstly, that the interest rate channel is still weak. And secondly, that the NBR is concerned about the strong appreciation of the RON²⁷ – raising the question of multiple objectives.

Slovakia. As stressed in the 2005 country's OECD Economic Surveys the inflation transmission mechanism in Slovakia is dominated by the exchange rate channel with the interest rate and aggregate demand channels being relatively weak. In these circumstances any increase in inflation coupled with an appreciation of the exchange rate would confront the monetary policy authorities with a difficult choice, either to raise interest rates to dampen demand or cut them to curtail capital inflows. Over the last years the central bank has struggled to limit the upward pressure on the koruna caused by large FDI inflows, especially in the automobile manufacturing industry. Although the current level of exchange rate is perceived to be essentially sustainable, swings in inflation and nominal exchange rate could lead to changes in real exchange rate that might be misaligned with economic fundamentals. Since the country's entry into the ERM II at the beginning of 2006, the exchange rate appreciated against the euro by 7%²⁸. In addition, pension system reform is estimated to add the equivalent of another 1.3-1.4% of GDP to the fiscal deficit which would push this to over 4% of GDP.

Although economic conditions vary among IT countries, a common challenge for all of them is to exert some control over the exchange rate channel so that the specified inflation targets could be achieved without hindering economic growth. This is because the exchange rate channel dominates, to some extent, the inflation transmission mechanism in all these countries. However, uncertainties regarding the evolution of energy and commodity prices in international markets together with the need for further domestic structural and fiscal adjustment make the central banks' task of controlling inflation in these countries more difficult.

²⁶ Sustained heavy capital inflows, that have been induced by Romania's EU accession in 2007, and high interest rate differentials (when it comes to speculative inflows), drive the appreciation of the domestic currency; this, further erodes Romanian firms' competitiveness and can bring about a sort of a *Dutch disease* over the longer run. Migration helps mitigate the pains of adjustment, but the competitiveness challenge could only rise unless efficiency gains achieved by domestic companies are adequate.

²⁷ Economic growth was above 8% in 2006 and is forecast to be strong in the short term. Given recent comments by some NBR officials about the economy overheating, the interest rate cut cannot suggest but an increased attention by NBR to exchange rate behaviour.

²⁸ Economic policies are aimed at achieving Slovakia's entry in the euro area in January 2009.

4.5 Is There a Better Alternative Monetary Policy?

In hindsight it looks as if the IT experience in the Czech Republic, Hungary, and Poland has had limited success so far. There have been several benefits to the adoption of IT, but these could, to a large extent, have equally been achieved by the implementation of alternative monetary policy regimes. Take for instance transparency and communication, the two main features hailed to be of great importance in an IT regime. They can be equally achieved under an exchange rate targeting regime. There is nothing that can stop the central banks from making public, periodically, their views on the economy while explaining the reasons for their actions. As, indeed, the Baltic countries and Bulgaria do to a large extent. In a race for a better understanding of their actions by the public, central banks' websites in EE publish a lot of information.

One major benefit of the IT regime in EE countries has been the publication of inflation reports – which present a comprehensive analysis of the current economic conditions and give useful insights regarding future policy actions.

The question that arises is then what should be the alternative. A simple answer would be to follow an approach similar to the one employed by the ECB. Many empirical studies have shown that the ECB is not indifferent either to fluctuations in economic activity or the exchange rate. It seems that for a central bank, “flexibility” is an asset at least as important as “credibility”.

An ECB-like system is likely to be a suitable regime. Under such an arrangement, the policymaker focuses on price stability too, but monetary policy management builds on the “just-do-it” principle. For small, still fragile economies, flexibility does not clash with credibility, to the contrary, both back each other.

In EE countries, the CB's pay a considerable attention to exchange rate developments. An ECB-like approach would allow them to do that without having to pursue multiple objectives. Defining a target range for inflation has proved to be a challenging task for all IT countries in EE. As figures 4.1- 4.3 show, all three countries, Czech Republic, Hungary and Poland have been, largely, missing their inflation targets. In more than seven years of IT Poland did not hit once its targets while Hungary and Czech Republic have had a poor performance in doing that. For EE countries an asymmetric IT target would probably be as challenging as a symmetric one. A feasible alternative would be a simple statement for aggressively pursuing price stability without the specification of a target.

The distinction between a flexible pursuit of an inflation target and a genuine IT regime is not merely semantic. The latter imposes stringent requirements on the central bank, and may be a very efficient device in the context of the developed economies; on the contrary, pretending to behave like these countries, while in reality retaining a large degree of flexibility is no better than communicating honestly on the “imperfect IT” system that is actually implemented.

The recent experience with IT in the Czech Republic, Hungary and Poland poses the question whether a move towards a formal way of implementing IT would be beneficial for other countries that intend to join the EU in the near future. The answer will depend, of course, on the particular economic conditions that exist in each country. But there are a few remarks that are worth mentioning here. One of them relates to the level of euro(dollar)isation. Countries that had high levels of inflation in the past tend to be more euro(dollar)ised as the public sought to protect their savings in a more stable currency. In Romania, for example, ca. 33% of M2 is in foreign currency, mostly euros and US dollars. Croatia is another example of a highly euroised country where almost

70% of savings are denominated in foreign currency. A typical issue in these countries is the indexation of financial contracts either to the US dollar or euro. The euro(dollar)isation is bound to hamper the implementation process of IT here simply because the central banks have limited control over their money supply. A particular case is represented by the countries that adopted a currency board, like the Baltic countries (which are already EU members) or Bulgaria, for example. However, unless some significant large unexpected adverse shock that could make them abandon their current exchange rate arrangements happens, it is extremely unlikely that these countries will change their monetary policy framework before adopting the euro.

Large interest rate differentials are another potential source of conflict with an IT regime. In the absence of capital account restrictions the domestic currency is bound to appreciate as foreign capital inflows move in to take advantage of higher returns. This should lead to an appreciation of domestic currency and put a downward pressure on the interest rates. But easier access to credit by domestic residents, which is in high demand in accession countries, could raise inflation expectations and it may adversely affect central bank's efforts to target inflation.

Also, a stronger currency will put additional pressure on the current account deficits. In Romania and Bulgaria, for instance, these are already large and growing. Under such a scenario the adoption of IT will leave even less room for manoeuvre for fiscal authorities if the targets for inflation are not set in relation to government demands for fiscal consolidation. It is a well documented fact that government's budgets in accession countries tend to be more under strain as EU accession costs add up to other expenses incurred, such as those related to pensions or health care reforms.

It is therefore essential that a central bank should not adopt a policy regime only for communication purposes or because it follows some policy fashion trends. A central bank should be concerned first and above all with credibility. And credibility will emerge if, over a long period, agreed targets – whatever they may be – are not missed.

5. Conclusions

This paper examines the inflation targeting regime in the context of transition economies. However, the success of such a regime depends largely on the degree to which certain general requirements are met. The uncertainty surrounding the conditional forecasts, the inherent existence of multiple objectives for monetary policy together with other elements of policy credibility, such as fiscal policy, cast doubts that a formal IT can be adopted successfully in transition economies at the moment. The pre-conditions for a formal IT impose a more rigid operating framework for monetary policy and leave less room for manoeuvre for a central bank. By consistently missing inflation targets a central bank is likely to damage, sooner or latter, its credibility and this fact could have long-lasting consequences. It is relevant that some central banks have resorted to an eclectic (soft) form of inflation targeting, in view of the difficulties mentioned above. An alternative for these central banks is to adopt an ECB-like approach. This would not only help preserve their hard earned credibility achieved so far while allowing them the much desired flexibility in the implementation of monetary policy. But, since all these countries will join the EMU sooner or later, it also makes more sense for an accession country to adopt a monetary policy practice which resembles closely the one practiced by the ECB.

In practice, however, this is unlikely to happen. The participation in the ERM II mechanism cannot be avoided unless a change in the Maastricht criteria occurs, which is quite improbable. Also, the announcement by a central bank of moving from an IT monetary policy regime towards an exchange rate target band is, again, unlikely to happen. Central banks in EE have invested some resources in striving to implement the IT regime and to influence the public's inflation expectations. A change in the monetary policy framework now would be perceived by the public as a weakness of the central bank because of its inability to pursue IT. It is plausible that IT countries in EE will continue to implement their IT monetary policy framework until they join the euro area. However, *de facto*, the central banks that have adopted IT in EE could pursue an exchange rate targeting since their foreign exchange reserves levels would allow them to do so. Indeed, IT countries that intend to move into the ERM II, like Poland for instance, have already started to re-build their foreign exchange reserves. Such a measure is likely to be only a precautionary one if the economy is sufficiently resilient to shocks. However, as the experience of Hungary so far shows, implementing an IT regime while in the ERM II, could be a challenging task especially if macroeconomic fundamentals are not strong and the economy's resilience to cope with external shocks is limited.

References:

- Ball, Laurence and Sheridan, Niahm (2004) "Does Inflation Targeting matter?" in Ben S. Bernanke and Michael Woodford, eds., *The Inflation Targeting Debate*. Chicago: Chicago University Press (forthcoming)
- Bernanke, Ben S. (2003), *A perspective on inflation targeting, Speech at the Annual Washington Policy Conference of the National Association of Business Economists*, Washington D.C, March 25, 2003 (www.federalreserve.gov/boarddocs/speeches/2003/20030325/default.htm).
- Bernanke, Ben S, Laubach, Thomas, Mishkin, Frederic, S. and Posen, Adam S. (1999), *Inflation Targeting: Lessons from the International Experience*, Princetown, NJ, Princetown University Press.
- Bernanke, Ben S. and Frederik S. Mishkin (1997), 'Inflation targeting: a new framework for monetary policy?', *Journal of Economic Perspectives*, **11**, 2, 97-116.
- Carlstrom, C. and Fuerst, T. S. (2002), 'Monetary Policy Rules and Stability: Inflation Targeting versus Price Level Targeting.' *Economic Commentary*, Federal Reserve Bank of Cleveland, **Feb**.
- Clarida, R., Gali J., Gertler M. (2000), 'Monetary policy rules and monetary stability: evidence and some theory.' *Quarterly Journal of Economics*, **115**, 1, 147-180.
- Daianu, D., Lungu, L. and Vranceanu R.. (2004), 'Romania's monetary institutions and policy: meeting the EU challenge', *Pre-accession impact study*, **2**, The European Institute of Romania,
- Disyatat, P. and G. Galati (2005), "The Effectiveness of Foreign Exchange Intervention in Emerging Market Countries: Evidence from the Czech Koruna", *BIS Working Papers* **172**.
- Fraga, Arminio, Ilan Goldfajn and André Minella (2003), 'Inflation targeting in emerging market economies', *NBER Working Paper* **10019**.
- Friedman, Benjamin, M. (2004), *Why the Federal Reserve Should not Adopt Inflation Targeting*. Paper presented at the 2004 AEE Conference in San Diego, January 2004.
- Gerlach, S., Svensson, LEO, (2003) 'Money and inflation in the euro area: a case for monetary indicators?', *Journal of Monetary Economics* **50**, 1649-1672.
- Goodfriend, Marvin S., and Robert G. King (1997), "The New Neoclassical Synthesis and the Role of Monetary Policy," , *NBER Macroeconomics Annual* **1997**.
- IMF WEO, September 2005, Chapter 4, *Does Inflation Targeting Work in Emerging Markets?*
- IMF Country Report, Czech Republic, No. 04/266, August 2004, www.imf.org
- IMF Country Report, Hungary, No. 04/145, April 2004, www.imf.org
- IMF Country Report, Poland, No. 04/217, July 2004, www.imf.org
- Jonas, Jiri and Frederic Mishkin (2003), 'Inflation targeting in transition economies: experience and prospects', *NBER Working Paper* **9667**.
- Kemme, David M. and Gavin, William T. (2004), "Measuring the Monetary Transmission Mechanism in Transition Economies". Paper presented to the 8-th EACES Conference in Belgrade, September 2004.
- Kerr, W., King R. (1996), 'Limits on interest rate rules in the IS model.' *Economic Quarterly* **82**, 47-76.
- Killos, Bohdan (2002), 'Maly Strukturalny Model Inflacji', paper published in the *National Bank of Poland research papers*, http://www.nbp.pl/publikacje/materialy_i_studia/154.pdf

-
- Kokoszczyński Ryszard, Tomasz Lyziak, Małgorzata Pawłowska, Jan Przystupa and Ewa Wrobel (2002), 'Mechanizm transmisji polityki pieniężnej-współczesne ramy teoretyczne, nowe wyniki empiryczne dla Polski', paper published in the *National Bank of Poland research papers*, http://www.nbp.pl/publikacje/materialy_i_studia/151.pdf
- Kuttner, N. Kenneth (2004), 'The Role of Policy Rules in Inflation Targeting', *Federal Reserve Bank of St. Louis Review*, vol. **86**, 4.
- Levin, Andrew T., Natalucci, Fabio M. and Piger, Jeremy, M (2004), 'The Macroeconomic Effects of Inflation Targeting'. *Federal Reserve Bank of St. Louis Review*, vol. **86**, 4.
- Mishkin, Frederic S., Schmidt-Hebbel Klaus (2001), 'One decade of inflation targeting in the world: what do we know and what do we need to know?' *NBER Working Paper* **8397**.
- Stone Mark, (2003), 'Inflation Targeting Lite', *IMF Working Paper* **WP/03/12**.
- Svensson Lars, (2000), 'The first year of the Eurosystem: inflation targeting or not', *NBER Working Paper* **7598**.
- Svensson Lars, (1999), 'Inflation targeting as a monetary policy rule', *Journal of Monetary Economics*, **43**, 607-654.
- Svensson Lars, (1997), 'Inflation forecast targeting: implementing and monitoring inflation targets', *European Economic Review*, **41**, 1111-1146.
- Taylor, John (1999) ed., *Monetary Policy Rules*. University of Chicago Press
- Taylor, J.B., (1993). 'Discretion versus policy rules in practice.' *Carnegie-Rochester Conference Series on Public Policy* **39**, 195-214.
- Truman Edwin M., (2003), *Inflation Targeting in the World Economy*, Washington DC: Institute for International Economics.
- Ullrich Katrin, (2003), 'A comparison between the Fed and the ECB', *ZEW Discussion Paper* **03-19**.
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List of Abbreviations Used in the Text:

IT - Inflation Targeting	Cz_R – Czech Republic
ERM - Exchange Rate Mechanism	ET – Estonia
EMU - European Monetary Union	HU – Hungary
EU – European Union	LV- Latvia
IMF – International Monetary Fund	LT – Lithuania
CB – Central Bank	PO - Poland
ECB – European Central Bank	RO – Romania
BoE – Bank of England	SK – Slovakia
NBH - National Bank of Hungary	SL – Slovenia
NBP – National Bank of Poland	EU-12(13) - Eurozone
MPC – Monetary Policy Committee	UK – United Kingdom
EE – Eastern Europe	HCPI – Harmonised Consumer Price Index
BU – Bulgaria	RPIX – Retail Price Index
CR – Croatia	

Appendix 1. Selected Macroeconomic Variables²⁹

Current Account(% of GDP)	Czech Republic	Hungary	Poland	Romania	Slovakia ^{4a}
2003	-6.2	-8.7	-2.2	-6.2	-0.9
2004	-5.2	-8.9	-4.3	-7.6	-3.6
2005	-2.1	-6.2	-1.7	-9.1	-8.7
2006*	-2.9	-7.3	-2.1	-10.6	-6.4
2007[§]	-2.0	-6.3	-1.9	-8.8	-3.9
2008[§]	-2.0	-5.6	-1.5	-8.5	-3.3

*-estimated, §-forecast.

Public debt (% of GDP)	Czech Republic	Hungary ^{2c}	Poland ^{3c}	Romania	Slovakia
2003	27.7	59.1	50.1	24.4	42.6
2004	27.8	60.7	48.8	23.7	41.6
2005	28.4	59.9	52.3	20.5	34.5
2006*	28.9	59.9	54.4	21.0	38.4
2007[§]	29.8	59.9	56.7	22.5	37.8
2008[§]	29.9	59.9	57.1	23.1	37.9

²⁹ Data Sources: IMF Country Reports, OECD Country Economic Surveys, central banks websites.

Unemployment Rate (%)	Czech Republic	Hungary	Poland	Romania	Slovakia
2003	7.8	5.9	20.0	7.2	17.5
2004	8.3	6.2	19.1	6.2	18.1
2005	8.0	7.3	17.7	5.9	16.2
2006*	7.3	7.5	14.3	5.2	13.5
2007[§]	6.8	7.7	12.6	5.1	12.2
2008[§]	6.3	7.6	11.3	4.9	11.7

Government Balance (% of GDP)	Czech Republic	Hungary	Poland	Romania	Slovakia ^{4c}
2003	-6.0	-7.2	-5.9	-2.4	-3.7
2004	-4.0	-5.4	-6.1	-1.2	-4.3
2005	-3.6	-7.8	-4.3	-0.8	-3.1
2006*	-3.7	-10.1	-4.1	-1.7	-3.7
2007[§]	-4.1	-6.9	-3.8	-2.8	-2.7
2008[§]	-4.3	-6.7	-3.6	-3.0	-2.2

4c- OECD.